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ORIGINAL LECTURES.

ABSTRACT OF A LECTURE ON A CASE OF IDIOPATHIC TETANUS.

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Reported by W. Hobson Heath, ex-Resident Physician University Hospital, Resident Physician Philadelphia Hospital.

GENTLEMEN,—The patient whom I bring before you to-day comes with the following history, prepared by Dr. Heath:

"Six days ago, preceded by several days of indisposition, he first noticed a slight difficulty in opening his jaws, a feeling of exhaustion in them, 'as though he had been using them too much.' This was shortly followed by a similar feeling in knee- and elbow-joints, and of an intense pain, of a piercing character, which he locates at about the ensiform cartilage, penetrating through to the spinal column, and thence radiating up and down the back, as high as the neck and as low down as the limbs. He says that all these symptoms and pains grow worse at different times during the day, and that his body, in spells of this kind, bends backwards. These exacerbations became most marked three days ago, when he had as many as six or eight.

"By trade he is a machinist, and of late has been working in damp and wet paper-mills. No clear history of traumatism, but four weeks ago he had a slight bruise and abrasion over elbow, which is now entirely healed. Health always good, but habits bad, being very intemperate. No family history. On admission, general appearance good. Muscular system well developed, but on examination found to be very rigid over abdomen, legs, and back; masseter muscles especially affected, so that he cannot open the mouth beyond half an inch. There was pain on pressure over epigastric region; the abdomen was tympanitic. There was no tenderness over the spinal column; the tongue was coated, dark, and dry; the intellect clear, but apathetic. There was no headache, and the convulsions were not very severe, but accompanied with decided and opisthotonous persistent rigidity. The pupils were normal, and revealed to the ophthalmoscope nothing indicating any cerebral or meningeal trouble."

The diagnosis of the present case is sufficiently clear not to need elaborate discussion, but I would like to call your attention to some of the symptoms in a little detail,—to some symptoms not always thought of in connection with tetanus. The first is abdominal pain, which is usually located at or about the epigastrium, or, as in the present case, is referred to the ensiform cartilage. This pain, at first slight, rapidly increases and seizes the entire abdominal region. Often it seems to be the centre from which radiate to the back and up and down to the extremities excruciating tortures. Our patient complains of it chiefly. It is somewhat obscure in origin, but is probably due to spasm of the diaphragm.

Again, I would call your attention to the fact that the unstriated muscular system is frequently implicated in tetanus along with the voluntary muscles, and as a result of this there is inability to empty the bladder and obstinate constipation on the part of the patient. In our present case both these symptoms have been very marked.

A third point to direct your minds to is the fact that the convulsions are usually, I may say always to some extent, accompanied by a rise of temperature, which is peculiar to this disease, and different from febrile temperature, in that it presents no evening exacerbation or morning remission. If you look at the temperature-sheet of a case of tetanus, taken every hour, it appears like the teeth of a saw, and if you compared it with the record of convulsions you would find that each exacerbation corresponds to a convulsion. Now, what is the cause of this rise of temperature? Evidently it is due in part or in whole to the muscular action, for it has been distinctly proven that in direct proportion to muscular activity there is increased production of heat. I believe, however, that there is another factor or other factors entering into the causation of this temperature rise.

If you take an animal and irritate a peripheral nerve, an impression is produced which results in a movement at a distal extremity, and you have what is known as a reflex action. Now, in tetanus, if you irritate a peripheral nerve, instead of obtaining as a result a simple reflex action, you get a violent convulsion all over the body. What is the cause of this? Probably there is, in tetanus, an excitable state of all the centres of the cord, and every little cell is ready to re-

ceive an impression and give an explosion. Almost certainly, however, this is not the whole pathology. The normal cord is so constructed that a peripheral impulse does not spread throughout it, but expends its power in generating a single reflex act. In the tetanic cord it would seem either that the nerve-paths are in such a state that impulses play over them at will, or that inhibitory centres which our present physiology seems to show are scattered through the cord to check irregular transmission and generation of impulses are paralyzed. Consequently every impression is morbidly transmitted, and every motor centre, morbidly reacting to these impulses, radiates them out over the whole cord, and a convulsion instead of a simple reflex action results. It is probable that in tetanus, as in strychnia-poisoning, the vaso-motor centres of the cord suffer, with its other motor cells, from the same excessive susceptibility, the same ungoverned spread of a travelling impulse.

A reflex action in health is not attended by a general vaso-motor spasm, because the cord in itself cannot produce other than local reflex vaso-motor spasms, precisely as it cannot produce any by local voluntary reflexes. In strychnia-poisoning, new channels are, as it were, opened, and impressions are not only more easily and frequently transmitted, but beyond to where they are in health, and other than normal results follow. Is it not allowable to compare this to the process following occlusion of a main artery in a limb, whereby the blood opens for itself new passages which are not in health so utilized, and a collateral circulation is established? It may be that in tetanus new conducting paths, until then dormant, are opened, and the impressions are conveyed not only to the vaso-motor centre at the base of the brain, but are also distributed to the centres along the cord. As a result you have reflex vaso-motor spasm accompanying spasm of the muscles, and every curve on the temperature-sheet may be evidence not only of a convulsion, but also of vaso-motor spasm.

That vaso-motor spasm has a marked influence on temperature I am satisfied of. In a series of experiments I have been engaged in lately, I have found that the bodily temperature is not an indication of the production of heat; that you may have a high temperature while the production of heat is low, and, on the other hand, a low temperature when the production is large, and that the bodily temperature is a question of *relation between production and retention* rather than of production. Vaso-motor spasm means that the blood, instead of being diffused over the surface of the body through the arterioles and capillaries to radiate off its heat, is, by the narrowing of them, driven internally and retained. It is plain also that in the convulsions of tetanus the blood is mechanically forced not to the surface but to the interior of the body, to the viscera, where no muscular storm rages.

In tetanus, therefore, the convulsive rise of temperature is probably due to these two factors, viz., increased production of heat by muscular activity, and retention of heat by interference with exterior circulation.

After death a characteristic and most interesting feature of tetanus is an instant or very early development of rigor mortis; often it is from life spasm to death spasm, "in death as in life." This is not an essential phenomenon to this disease, but an accidental one. It is due to the over-hasty coagulation of the albuminous substance known as myosin, which exists in muscular tissue, and always coagulates after death, sooner or later producing post-mortem rigidity. The sudden occurrence after death of post-mortem rigidity has been observed in many other conditions than tetanus, and is especially apt to occur where the muscles have been undergoing great or unusual activity. To sportsmen it is familiar after the chase, resulting in death to the rabbit, the animal killed after a long run stiffening as it rolls over and over after the fatal shot. On the battle-field, after a fight, soldiers have been seen in the various positions of life, rigid in death, with even the last expression of hate, rage, or prayer upon their faces, just as they were when struck by the fatal ball. The cause evidently is some alteration wrought in myosin by excessive exertion. I have found that a lower temperature is required to produce immediate coagulation in myosin obtained directly from an exercised muscle than is normal, and that, on the other hand, the myosin squeezed out of the muscle enduring the long rest of hibernation resists coagulation much more successfully than does the normal principle, *i.e.*, that obtained from a muscle in full life and not excessively exercised.

It is frequently affirmed that, with all our improvements, we have not really made any gain in the therapeusis of tetanus. I do not believe this at all. We would have gained more than we have if surgeons, who generally treat this disorder, were more generally acquainted with the great principles of medical therapeusis as well as they are with those of surgical treatment. What guiding principles are we then to apply? In the first place, it is to be borne in mind that tetanus is not a disease with a definite course to run, like the acute specific fevers; on the contrary, its duration is very variable.

I have often said to you that the treatment of all diseases depends largely upon the manner in which death is brought about. Now, in tetanus death occurs in two different ways. In the first place, the patient may die of acute suffocation during a paroxysm of great intensity and duration, in which the muscles of respiration are rigidly contracted and hold the lungs as in a vice, preventing their expansion. In the second place, he may die of exhaustion; and this is the most frequent cause of death. The continuous rigidity of the muscles of the jaw and pharynx renders mastication generally impossible and deglutition very frequently difficult, which interferes very much with and sometimes entirely suspends nutrition. This, together with the great wear and tear consequent upon the intense muscular exertion, rapidly carries the patient to a fatal end; and in all cases of tetanus the tendency therefore is to exhaustion. This can never be too strongly insisted on. It is by interference with the nutrition and by exhausting the forces of the patient that tetanus kills in the great majority of cases. The feeding of the patient is even more important than the administration of any drugs; and every grain of food that can be digested by the patient should be given him.

The treatment generally, and the feeding especially, should be systematic. You all know that when we want to fatten an animal we feed often, at short intervals; and so it is in tetanus: the patient should be fed every hour during the day and every three hours during the night, if he sleeps, but if awake, from any cause, advantage should be taken of his wakefulness.

In most cases solid food must be avoided, for, should a patient have a piece of meat or bolus of solid food in his pharynx, and a convulsion come on, you can see the great danger of choking to death. Again, the passage of the bolus itself might bring on an attack. It is plain that it is impossible for the patient to chew food, and unchewed solids require much power for digestion, whereas the greatest amount of result with the least expenditure of force is what is wanted. Generally, however, the teeth are so tightly clenched together that there is no danger of getting any solid food into the mouth. When from such cause there is decided interference with the ingestion of liquids, it is necessary at once to extract teeth or force a passage in other mechanical way. The best diet is composed chiefly of milk and eggs, with the lean of flesh in some form. The best preparation of flesh is scraped raw meat; with milk and eggs, it should be the basement of your treatment. I cannot recommend this too highly, as one of the best and most nutritious articles we can use. It may be made by bruising meat in a mortar, but a better plan is as follows. Lay a slice of the round of beef upon a firm board, and scrape it laboriously with a dull case-knife until you get out of it all of the red pulp it will yield. This, mixed with brandy and sugar, is not unpalatable to most persons. In using eggs it should never be forgotten that they are much more digestible raw than cooked, and that in all cases of systematic feeding they are to be given raw, diffused in milk, or partially cooked in mulled wine, or as an unbroken whole in ordinary wine.

Just here is a very important point, namely, the use of alcohol. In tetanus this agent should be used in moderation from the very beginning of the disease, not so much for its general as for its local action, *i.e.*, not so much to stimulate the system as the stomach: to enable the latter viscus to digest the utmost possible amount of nutriment, rum, brandy, whisky, or wine, in small amounts, should be given with every particle of food going into the stomach.

Alcohol, you see, does not come in here as a stimulant, but as a food and as an aid to the digestion of food,—to prevent tissue-changes, and to whip up the stomach. After feeding to keep up the strength, our attention is to be directed to lessening the severity of the convulsions, *i.e.*, the strain or drain upon the strength. Of the first importance are ***absolute*** quiet and avoid-

ance of excitement. You want, then, a good nurse, not one who fusses, but one who knows just how much and when to do. Only this nurse and the medical attendant should have access to the room, which should be a quiet one, removed from the family,—a back one, away from the noise of the street, and kept darkened. Carpet slippers should also be worn by the nurse or attendant, and no intrusion or disturbing the patient allowed.

In regard to the all-important question of medical treatment, there are several generalizations you should not forget. It is not, as you might think from reading the journals, a question of whether systematic feeding gives better results than drugs, or whether this remedy is superior to that, but it is what combination of treatment is best for the patient. Remember, also, that susceptibility to the action of neurotics is always rapidly lessened in disease, and hence that in a protracted tetanus it is essential to vary the treatment; also that better results very frequently follow the combined use of remedies than their separate employment. It is also necessary for us to have as clear an idea as possible of what we intend to do. There is still much uncertainty as to the nature or ultimate pathology of tetanus, and until this is cleared up we cannot be certain how far drugs are absolutely curative, or whether the only good to be got from them is to keep the patient alive until the disease spontaneously subsides.

The present drift of evidence indicates that there is hyperfunctional excitement of the cord, and that certain remedies, such as bromide of potassium and Calabar bean, are of real curative value, by their tendency to reduce or lower this functional excitement. These same agents, however, subserve other purposes than this in the treatment of the disease; and let us not press farther their direct curative action.

The value of an agent which will keep off the convulsions in tetanus as a means of preventing fatal exhaustion or death from tetanic asphyxia is clear. If we could subdue all convulsions, in the majority of cases death would be averted. The agents which we have for use are, first, those that act continuously,—opium, bromide of potassium, chloral, Calabar bean, woorara [tobacco, aconite, veratrum viride]; second, those which act quickly and briefly,—the anæsthetics, nitrite of amyl.

The remedies of the first class which are printed in brackets are not available, because they exert such other actions than as mere anti-convulsants upon the system as to render them dangerous. Let us pass them by. Without much discussion, the relative therapeutic use of the two classes seems clear. Those of the first set must be the stand-bys, whilst those of the second are to be employed as adjuvants whenever the convulsions are so violent that immediate necessity exists for subduing them. In the height of the disorder these remedies are invaluable; they should always be sitting upon the table, under the supervision of an attendant sufficiently instructed to employ them. And you should always remember that chloroform is much more efficient than ether, but far more dangerous; that nitrite of amyl is less dangerous, and at first even more efficient, than chloroform, but that, according to my experience, patients get rapidly accustomed to it.

In attempting to select or arrange the various spinal depressants at our command, one general principle at once suggests itself, namely, that sleep is a necessity to endurance, and the proper time for sleep is night. It is obvious from this that those drugs which act as soporifics as well as spinal depressants are to be especially employed at night, and that if there be any fear of undue tolerance to them being set up, they should be reserved for night use. Hence it would seem wisest always to press chloral and opium as night approaches. The well-assured value of opium in this affection probably rests very largely in its power of subduing pain, and its employment, it seems to me, should be dominated by the condition of the patient as to sleep and pain. Bromide of potassium in sufficient dose is certainly very efficient in controlling spasm; its influence on the system, when set up, is more permanent than that of either chloral or opium, and, according to my thinking, it is well to employ it always as the underswell, so to speak, of the treatment, giving it through the day, pushing chloral and opium at night, and employing nitrite of amyl and chloroform when there are exacerbations of the disorder.

In using the drugs mentioned it must always be borne in mind that only heroic doses are of any avail. An ounce of bromide of potassium a day is without risk,

but with chloral and the anæsthetics there is some danger from very large doses. The taking of risk is, however, abundantly justified, and forty grains of chloral with a half grain of morphia make a very efficient sleeping-draught, which may even be repeated in an hour under some circumstances.

The principles which I have attempted to outline to you are those upon which the patient before you has been treated; and so far the result has been excellent.

ORIGINAL COMMUNICATIONS.

THE ADAPTABLE POROUS SPINAL JACKET, AND ITS MODE OF APPLICATION TO CASES OF POTT'S DISEASE AND LATERAL CURVATURE.

BY BENJAMIN LEE, M.D.,

Chairman of Committee on Hygiene, etc., Philadelphia County Medical Society.

Read before the Philadelphia County Medical Society, February 12, 1879.

MR. PRESIDENT AND GENTLEMEN,—The frame which I have caused to be erected, in order to demonstrate the mode of application of the porous felt jacket in cases of spinal curvature, before you this evening, is the same that I used before the Medical Society of the State of Pennsylvania, in the lecture-room of this building, in the year 1870, in order to prove the feasibility of self-suspension as a means of treating this class of diseases. At that time (I say it without the slightest hazard of contradiction) no physician, either in America or Great Britain, was making use of suspension, and none, anywhere, was making use of *self-suspension*, as a therapeutic means.

Subsequently, at the meeting of the American Medical Association, in this city, in the year 1876, I placed the same frame at the disposal of Dr. Lewis A. Sayre, of New York, in order that he might demonstrate his brilliant discovery of the application of the plaster-of-Paris bandage to the treatment of caries of the spine.

In connection, therefore, with the present tendency of development in the management of these diseases, it possesses a certain degree of historical interest. It is, as you see, a simple upright frame, consisting of two side-pieces and a cross-piece, into the middle of the latter of which a strong hook is securely screwed. On this hook is hung a simple pulley, over which runs the rope by which the patient is suspended. As I shall have occasion to say subsequently, however, the frame itself is not ordinarily a necessary adjunct.

The patient whom I take the liberty of introducing to your notice, a lad 13 years of age, was placed under my care some four years since, for an affection of the spine with great deformity, considerably more than you observe at the present time. On giving him a careful examination, however, I discovered that his sufferings and loss of health at that time were due not so much to the spinal affection as to disease of the right hip-joint, in which suppuration had already taken place. I at once applied a long splint, with the effect of immediate relief of pain, diminution of fever, and general improvement, so that from having been unable to turn in bed he could, in a few days, stand up with perfect comfort. The pus, however, found its way to the surface, discharging, at the upper third of the thigh, anteriorly. I mention this fact in his history, as explaining his lameness. There is no disease at present in the joint, and he carries his crutch, I am satisfied, rather as a matter of habit than as a necessity.

The idea of the porous felt jacket is essentially the same as that of Dr. Sayre's plaster cuirass, with this difference,—that his is a fixed dressing, while mine is a movable one.

I confess that from the first I have not been an enthusiast in regard to the plaster jacket. While recognizing the value of the principle on which it depended, I have felt that in practice it was open to very serious objections. Among these are:

1st. Its *weight*. I shall show you that in this respect, while possessing even greater firmness, the felt jacket has a great superiority, in being comparatively light.

2d. Its *impermeability*, preventing at once the escape of the exhalations from the body and entrance of air to the skin, thus defeating two most important provisions of nature for maintaining the cutaneous covering of the trunk in a healthy condition. The material of which this jacket is made, which I will now remove from the patient and pass around for inspection, is so porous that smoke may be

blown through it by the mouth. It can therefore offer no obstacle to the escape of the perspiration or to penetration of the air. The objection to the plaster-of-Paris dressing, on this score, holds with equal force against the silicate of soda, the paraffin, the glue and zinc dressing of Dr. Levis, or any other similar substance applied in this way.

3d. Its absolute rigidity and want of adaptability. The porous felt jacket is susceptible of a certain amount of adjustment, by means of the lacing in front, and, what is of greater importance, can be altered by heat so as to adapt itself, with the greatest accuracy, to the variations and improvements which take place in the patient's form.

4th. Its liability to crack, peel, and pulverize, thus losing its supporting value and, at the same time, proving a constant source of annoyance to the patient by the dirt which it makes. The felt jacket always remains firm, will last as long as the patient needs to use it, and is perfectly clean.

I will now cause the patient to suspend himself. As you observe, he draws himself up with great ease, and swings free of the floor (Fig. 1). From the end of the suspension-rope hangs a steel bow carrying a double head-band, one strap going under the chin and the other under the occiput. The rope to which it is attached, passing through the pulley above, is grasped by the hands of the patient, by means of the wooden ovals, which are placed at any required height by knotting the rope. A simple pulley only is used. The objection to the compound pulley used by Dr. Sayre is that in self-suspension the rope may foul, and the patient, unable to extricate himself, be permanently hung. When the plaster jacket is to be applied, the weight of the body is taken partly off from the head and neck by axillary bands taking their attachment from the steel bow above the head. The desired amount of extension is then made by drawing down on the rope until the patient is nearly or quite lifted from the floor. The end of the rope being now securely fastened to one of the uprights, the dressing may be applied. If it is intended to apply a plaster-of-Paris or silicate-of-soda jacket, it is necessary that the patient should have on his body only a closely fitting gauze undershirt, without sleeves; it should be "skin-tight," in the words of Dr. Sayre. Over this the prepared crinoline-bandage is passed, if plaster is to be used. The crinoline which I have found to be best adapted to the purpose is known as the "International;" it has a firm, even mesh, is tough, but not stiff. The bandages are three inches wide. Freshly calcined plaster is dusted into them as they are rolled, which should be loosely done. When they are needed, they are

FIG. 1.

Self-suspension by means of Dr. Lee's spinal swing.

set up on end in a bucket of warm water, and, as soon as all the bubbles of air have escaped, they are ready to be applied. In case silicate of soda is to be used instead of plaster, either crinoline or unbleached-muslin bandages are to be employed, the latter being rather the best. The solution of silicate of soda is a clear liquid, specific gravity 1024, and the consistency of oil.

It may be obtained from Bullock & Crenshaw, and many of the retail druggists. It is applied to the successive layers of bandage by means of a small, flat paint-brush. In order not to protract the suspension unnecessarily, there should be at least two operators, one to apply the bandage, the other to follow up the first instantly with the brush. The strength of the apparatus may be reinforced by placing these strips of tin vertically between the layers of bandage as it is put on. These strips have holes punched in them on one side, leaving a burr on the other side, which produce irregularities upon their surface, and prevent them from working their way out of the bandage, and the bandage from slipping out of place while wet. Before the dressing is commenced, prominent points, such as the spinous processes of the ilium, must be protected by little pads like these, which are afterwards removed, and a layer of wadding or an air-pad is placed upon the abdomen, to allow for its changes in volume, in respiration and digestion.

When I first tried to apply the porous felt directly to the body, after softening it by heat, I found that there was great difficulty in avoiding wrinkling, and also that the heat was very disagreeable both to my hands and to the patient's body. As the result of my experiments, I have now adopted the plan of first applying a plaster or silica jacket in the way described. When this is perfectly dry, it is cut accurately down the front, removed from the patient, and sent to the factory, where it is used as a mould to form a plaster model of the patient (Fig. 2). Upon this cast the felt jacket is shaped. This one is, as you see, an exact reproduction of the body of the patient here to-night. The adaptable porous spinal jacket opens down the front, and is ordinarily fastened by a lacing and a double row of hooks. Of all forms of spinal supports the plaster jacket is the heaviest. I have here a silica jacket, kindly sent me by Dr. Coover, of Harrisburg, which I find weighs two pounds. The felt jacket which this patient is now wearing weighs only one pound. I have also here a steel spinal brace, which the boy formerly wore, which weighs one and a quarter pounds.

FIG. 2.

The adaptable porous jacket in lateral curvature—Case of Miss E. S.—Back view.

FIG. 3.

The adaptable porous jacket in lateral curvature—Case of Miss E. S.—Front view.

To show that there is an actual extension maintained by this apparatus, I will now measure the boy's height in your presence, and then apply the jacket in suspension. It is found that he has actually gained one and a quarter inches in height. It has been objected to this form of suspension, that the strain upon the cervical ligaments is very great, and might possibly be inju-

rious. I can only say that I have used it daily now for upwards of ten years, in adults as well as children, and in cases of disease of the cervical vertebræ as well as low down in the spine, in all varieties of Pott's disease and lateral curvature, and have never yet seen a bad result. The only effect I have noticed in spinal caries, especially in little children, is that after the first fright is overcome the great feeling of relief from pain, which is caused by the extension separating the ulcerated surfaces of the vertebræ, leads the patient instinctively to make traction and practise self-suspension. The relief that has been given in many cases, simply by the practice of self-suspension for a short time, five or ten minutes daily, has been most surprising.

In order to use suspension for the treatment of cases such as have been referred to, it is not necessary to have an elaborate apparatus; all that is necessary is a stout hook that can be fastened to a joist in the ceiling or over the top of a doorway, through which a clothes-line may be passed, two simple straps being used for a head-sling, one passing under the chin and the other around the occiput. I easily hold the whole apparatus, as you see, in one hand. It is not necessary to have these wooden ovals on the rope, but it is very convenient for the grasp, and they are inexpensive. In cases of lateral curvature or lateral deviation in angular curvature they are very useful, one being placed at a higher level than the other, and the hand corresponding to the concavity of the spine (or, where the curvature is sigmoid, to the greater concavity) being placed higher than the other, the curve is gradually unbent at the same time that the muscles are strengthened by systematic exercise.

CASE OF DEATH FROM A MIXTURE OF ETHER AND CHLOROFORM.

REPORTED BY P. J. A. CLEARY,
Assistant-Surgeon, U.S.A.

PRIVATE H. D. B., Company H, Nineteenth Infantry, age about 33, large and robust, addicted to liquor, was admitted to hospital, December 3, 1878, suffering with an injury of middle finger, right hand, resulting in gangrene of the second and third phalanges, and in consequence it was decided to amputate at the metacarpal articulation. For this purpose a mixture of equal parts of ether and chloroform was administered. About ten minutes previously, two ounces of whisky were given. I examined his heart, and found it normal in every respect.

The anæsthetic was administered on a piece of lint covered with a small towel, held square in contradistinction to cone-shaped. I personally administered the mixture, while the steward observed his pulse. The cloth was held so as to allow a free admixture of air. He inhaled freely. About two drachms were first poured on the cloth, but had no apparent effect. Shortly after, about the same quantity was poured on; he observed that "he did not feel it." After a time, about the same quantity was again poured on, and, as I turned to look at some instruments, he requested me not to begin yet to cut him. A further quantity was now poured on the cloth, when he began to laugh; this was followed by attempts to articulate, then, as is common, by strong gesticulations of his arms, to stop which the steward forcibly pressed down one arm, holding him by the wrist, while an attendant did likewise with the other. He was now passing to a state of unconsciousness, and in reply to my inquiry the steward said he could not feel the pulse, but added that his arm was somewhat twisted, which prevented his perceiving the pulse. I therefore felt for the pulse at the other wrist, but could not perceive it. Just as I felt, the muscles of his arm and neck, which had been strongly in action, suddenly relaxed; his breathing, however, was very good, and such as would in no wise have attracted attention. At once I removed the anæsthetic and dashed some cold water in his face. The pulse did not return. He continued to breathe freely for a little time longer, then his breathing became labored, and then suddenly stopped. The action of the heart had previously stopped, and the man was dead. I will add that everything I ever heard of, saw, or read, appropriate for such cases, was done, but to no effect. The mixture consisted of chloroform and ether fortior; amount used, exactly one ounce; time in using it, fifteen minutes. Cause of death, paralysis of heart.

Of the entire amount used, one-half only was chloroform, *i.e.*, half an ounce. Of this amount a large proportion was wasted over the cloth, and which he never inhaled; the inhalation of the remainder occupied fully fifteen minutes.

SPONTANEOUS COMBUSTION.—Dr. Atkinson, in the course of an article on "The Treatment of Alcoholism," in the *Practitioner* for January, says, "To show to what extent alcohol may be present in the blood, I may mention I have known it to burst into flame on a light being applied to a cut head, and Professor Ogston, of Aberdeen, has told me he has been able to set it alight when he has cut open the bladder of a man who has died in a fit of alcoholism."

TRANSLATIONS.

HEREDITARY BONE-SYPHILIS—MULTIPLE SPONTANEOUS FRACTURES AND PSEUDO-PARALYSES OF THE LOWER LIMBS AS A RESULT OF THE FRACTURES.—Polaillon (*Cbl. f. Chir.*, No. 4, 1879; from *Bull. de la Soc. de Chir.*) tells of a woman of 21, who had suffered, since her second month of pregnancy, with flat condylomata, who gave birth to a child at full term, and spontaneously. This child showed a fracture of the left humerus, upper third, a paresis of the right arm, as well as of both the lower extremities, though to a less degree. The bones about the elbows, and also the whole of the left femur, were thickened. Pressure on the affected parts was painful. No other external sign of syphilis was present. The child died in eight days, of intestinal catarrh. Post-mortem examination showed fracture near the upper end of the left humerus, with dislocation of the upper fragments, without the formation of callus, except a thickening of the periosteum. Fracture of the right humerus at the same point, without tearing of the periosteum and dislocation. Both fractures were respectively nine and eleven millimetres from the epiphyseal cartilage. The right femur was one-half centimetre longer than the left. The latter was of decidedly smaller volume in several places. There was a transverse fracture of the left femur, without dislocation, about five centimetres below the epiphyseal cartilage. In the right femur there was a fracture near the upper end. Various enlargements were found on the other bones, with porotic condition in places. Polaillon describes the fractures as intra-uterine, and not as having occurred after birth. He says the inflammatory changes showed this. X.

THE MEDIAN NERVE AND ITS DISTRIBUTION TO THE FINGERS.—M. Richelot made, in January, 1875, a careful study of the nerves of the fingers. He found that the collateral dorsal nerves of the index, middle, and ring fingers proceed exclusively from the collateral palmar nerves, and are not furnished by the nerves of the back of the hand. On the index, the middle, and the ring finger the palmar collateral furnishes a branch to the upper part of the first phalanx, which passes along on each side of the dorsal aspect of the finger to its extremity. No such arrangement exists in the thumb or little finger. The nerves of the back of the hand, radial and ulnar, furnish two collateral dorsals to the thumb and two to the little finger, but, reaching the root of the index, the middle, and the ring finger, it spends itself in small twigs without reaching the second phalanx. Two observations made by M. Richelot confirm these anatomical statements. In the first case, section of the median nerve; complete anæsthesia in the centre of the field of this nerve; the anæsthesia decreased from centre to periphery, and tended to disappear slowly. The absent sensibility was supplied by neighboring nerves. X.

A CONTRIBUTION TO CHEILOPLASTICS.—Maas (*Cbl. f. Chir.*, 1879, p. 86; from *Deutsche Zeitschr. f. Chir.*) extirpated an extensive carcinoma of the under lip in a man of 42 years. A flap taken from the cheek to cover the wound became gangrenous, and another from the skin of the neck became crumpled and failed to cover the spot. Subsequently Maas made two four-cornered flaps out of the entire substance of the upper lip, the points of the flaps lying in the middle line of the lip. These were turned backwards and united with one another, and also with the borders of the defective part. The result was a peculiar and small oral opening instead of a mouth. Later, this was enlarged to a respectable size by the division of each angle. The result was quite satisfactory, as can be seen by reference to a picture given. X.

FOURNIER ON THE TREATMENT OF CEREBRAL SYPHILIS.—From a clinical lecture by Dr. Fournier, published in the *Bull. Gén. de Thérap.*, January 30, we extract the following summary: 1. Cerebral syphilis being made out, the health of the patient is dependent upon the most energetic treatment and nothing less. 2. This energetic treatment consists in the immediate and simultaneous administration of large and repeated doses of iodide of potassium and mercury. 3. Experience has shown the following method to be the safest and to give the greatest chance of success: (*a*), administration of iodide of potassium to the daily amount of eighty grains, on an average; (*b*), administration of mercury in the form of two daily inunctions of eighty, one hundred and twenty, and one hundred and sixty grains, progressively. X.

PHILADELPHIA
MEDICAL TIMES.

PHILADELPHIA, MARCH 15, 1879.

EDITORIAL.

MEDICAL LEGISLATION IN THE FORTY-FIFTH CONGRESS.

THE last moments of the Forty-Fifth Congress will long be memorable for the swift haste with which two bills of very great interest to the whole medical profession were crystallized into law.

First, we are delighted to announce that, after three years of work, a clause has been secured in the Sundry Civil Service bill, which appropriates twenty thousand dollars to print the first two volumes of the Catalogue of the National Medical Library. When it is remembered that it is impossible to pass through the press more than two volumes of this work in a year, and that Congress never abandons such an enterprise when once started, the completeness of the success is manifest.

The preposterous bill to make Dr. Woodworth Director-General of Health, which we some time since took occasion to comment upon, was jugulated in the committee of the House. Only two or three hours before the closing of the session, Mr. Gibson, of Louisiana, reported favorably, from the House Committee upon Epidemics, a bill for the creation of a Board of Health, which had been introduced by Mr. McGowan, of Michigan, and which, in its essential features, was in accord with the ideas advocated by the Public Health Association and by this journal. The bill was passed almost at once: nevertheless, as only one hour and a half remained before the final closing of the session, haste was of the utmost importance. It so happened that, in the private discussions immediately before the bill was launched upon the House, certain sections had been marked, with pencil, "omit." The bill, however, passed the House with these clauses in it; but the transcribing clerk, who was urged to the utmost speed, dropped them out, so that the bill as it was recorded, and as it went to the Senate, did not contain them. The great haste was in part caused by the known fact that Dr. Woodworth would actively and personally oppose the bill in the Senate, and it was greatly feared would defeat it, or, at least, sufficiently retard it. Any determined filibustering by one or two Senators would have been fatal. The body of representatives and physicians who went to the Senate were, however, too overwhelming, and the bill was secured.

It is not necessary to comment upon the action of Dr. Woodworth during the past session, but it does now seem the right time for him to alter his tactics. He has been defeated by the power of the general profession. The personal influence exerted by him during the past winter upon Congress for his own as contrasted with the general good has been enormous and very skilfully employed, but he is not a match for the American medical profession as represented in the Public Health Association, and if he persist in opposition, refusing to fall in with what is evidently the best for the country, and to work harmoniously in the new organization, the chances are manifold that he himself will be eventually abolished. Public opinion in this country becomes, finally, an Atlantic, which will bury any Mrs. Partington who persists in broom-exercise.

We print in another column the bill as adopted, with the omitted clauses in italics. It will be seen that it gives to the Board all power over its own organization, over investigations to be made, and also requires it, in conjunction with the Academy of Science, etc., to prepare a well-digested plan of "national public health organization."

The evident intent of the bill is to stimulate and aid local health boards every-

where, not to supersede them. Much of the power of the act was lost with the omission of the clauses previously spoken of. It is expected, however, that they will be reinstated during the approaching extra session of Congress. Here is Dr. Woodworth's opportunity to thoroughly harmonize himself with the new order and re-establish his injured prestige. We trust most sincerely that he will honestly and persistently exert himself to work in unison with his colleagues and to secure the required legislation. The coming summer will probably strain to the utmost the new organization, with its unformed machinery, even if it have five hundred thousand dollars at its disposal. There have certainly been during the last three months in various parts of the South isolated cases of yellow fever, which show that the cold has not completely destroyed the infection. There is, therefore, great danger of a repetition of the bitter experience of former occasions, when the second year was even worse than the first. The folly of a sole reliance upon quarantine seems to be clear, and for the newly-organized board to cope successfully with infection from without and with infection from within will require exertions no less remarkable than those put forth by the infant Hercules.

The permanent usefulness and scope of a proper National Health Board do not seem to be generally understood. There has been and still is in this country, even among the medical profession, a strange apathy, growing out of a lack of appreciation of what ought to be the relations of the national government to medicine. Thousands of dollars spent in dredging the seas, searching the poles, exploring the deserts,—two hundred and fifty thousand dollars appropriated during the past session for a new building to contain the "curiosities" thus acquired,—and yet we suppose not merely Congress but our own profession will look aghast at the boldness of the proposition that one hundred thousand dollars be spent in building and equipping laboratories under the supervision of the National Board of Health, and thirty or forty thousand dollars be annually devoted to their maintenance. Nevertheless, the nation ought to do this for its own preservation, and if the profession once fully realizes the necessity the laity will follow. Let us, then, all rejoice over what has been achieved, and gird ourselves for renewed effort until medical science has a centre in Washington comparable in power and activity with those of natural history, astronomy, and other abstract sciences already existing.

CORRESPONDENCE.

LONDON LETTER.

PERHAPS the most interesting communication made to any of our societies lately is that of Dr. Matthews Duncan to the Medical Society, on *Antiseptic Midwifery*. So important was it, and listened to with every attention by a distinguished audience, that an abstract of it may be acceptable to your readers. Being a great personal friend of Prof. Lister's, having left the northern metropolis at nearly the exact time Prof. Lister turned his steps southward, it might *a priori* be surmised that Dr. Duncan would be an advocate of the antiseptic plan of treatment. Consequently a large number of practitioners came to hear, and also to learn how antiseptics are applied to every-day midwifery. Dr. Duncan commenced by saying that there is no subject which excites more professional interest or more interest among the general public than that of puerperal deaths. A wife, the mistress of a household, the solace of her husband, the proud mother of a number of happy children, is suddenly snatched away after an auspicious event. There is something so sad about such deaths that all would welcome with heartfelt joy any plan which promises to lessen such disastrous events. Puerperal deaths own various causes, but by far the most frequent and prevalent causes are septicæmia and pyæmia. Both these diseases involve or imply inflammatory processes, and both are essentially septic. It is against them that antiseptic midwifery wages war, and in which, he said, it had already achieved great success. The object of the paper was to spread and diffuse further knowledge on this important matter, and to stimulate further inquiry into it, with a view to the more general adoption of the beneficent antiseptic methods. Already, said Dr. Dun-

can, more pain is prevented, more life saved, by antiseptic methods than by all the recent improvements of modern midwifery combined; and there is no prospect half so bright and encouraging as that held out by the general adoption of the antiseptic treatment of the parturient condition. And, it is certain, all fervently wish that these high hopes may be realized. He would not, he said, proceed to discuss that division of the subject, the treatment of the blood by which the fermentation or sepsis is carried throughout the organism, as by the use of hyposulphites, introduced by Polli, of Milan. He would confine himself to the consideration of the local use of antiseptics. He pointed out that the healthy lochial discharge of some women approached in smell and odor putrefactive discharges, so that it was not always possible to discriminate them; but in all doubtful cases it was well to treat them as if putrefactive. The putrefying lochial discharge may find its way directly into the blood by the uterine sinuses, or be taken up by the lymphatics: in either case a state of blood-poisoning, or septicæmia, is set up. The removal of all putrefying material is essential to the arrest of this blood-condition. The antiseptic measures to be adopted consist of the removal of the offending material by the obstetrician's finger, or a pair of forceps, previously covered with an antiseptic. In some cases it becomes necessary to introduce the hand, which should previously be carbolized, by being smeared with the ordinary carbolic acid and oil mixture. By such treatment of the hand preparatory to its introduction into the female passages, two ends are attained. If there be no great amount of putrefaction present, the hand thus treated carries with it no danger of leaving putrefying matters, or germs, on the bared surface; while on the other hand it is a means of applying an antiseptic to a surface on which a putrefactive process may be actively progressing. Then as to injections into the uterus, he advocated carbolized water and the gentlest possible force sufficient to throw the fluid into the uterine cavity. Neglect of these precautions might lead to the introduction of air or fluid into the uterine sinuses, and produce baneful results. To secure gentleness of pressure, it was of the first importance to have free and sufficient exit for the fluid injected, and often it became necessary to use a double canula. The running out should be carefully watched, and the moment the outflow ceases the injection should be stopped. He did not agree with those who advocated the leaving of the intra-uterine tube *in utero* to act as a drainage-tube. If antiseptically plugged, it no longer acted as a drainage-tube, and not so plugged it was a source of danger in itself. To secure gentle pressure it was well to have a long tube, so that the fluid could be held above the patient; but it should not be raised to an undue height. A warm carbolic lotion of the strength of one in fifty was useful. About half a pint or a pint should be injected at once, and the uterine cavity should be washed until the fluid returns clean. It is not desirable to have too frequent daily injections. Such irrigation might be desirable in some cases even when no putrefaction was present. I am not now engaged in midwifery practice, and never lost a patient in the parturient or post-parturient state, but I can remember a number of cases where the lochia became offensive, where such irrigation would probably have given much comfort to the patient and those in attendance upon her. There was a certain risk of the carbolic acid producing poisoning of its own in certain cases, but Dr. Duncan said that the production of dark-colored urine merely was quite unimportant. At times more serious symptoms were produced, as shivering, cyanosis, and a weak and fast pulse. So far as he knew, no fatal case had yet occurred.

The great modern improvement in antiseptic midwifery was the prophylaxis of puerperal septicæmia or pyæmia. This subject could be divided into the prevention of danger from within and of danger from without. In addition to the most scrupulous carefulness as to perfect cleanliness about the parturient woman, in different Continental schools, they had adopted the plan of using carbolized ointment for smearing the finger previous to its introduction into the vagina, and systematic carbolized irrigation of the uterus after parturition, with most excellent results. As to the use of the spray in labor, at the moment of the birth of the child, it had been attempted, but was found to be very troublesome and in many ways objectionable. The spray had been tried in the performance of Cæsarean section, as it had in the operation of ovariotomy, with good results. It certainly seemed very desirable that the spray should be used for the treatment of the abdominal as well as the uterine incision; but the drawback here was that, in spite of all care on the part of the operator, septic material might find its way into the uterus through the natural passages. Returning to the subject of antiseptic midwifery, he said that now it was comparatively easy for physicians and nurses to keep themselves medically clean, and that the danger of puerperal septicæmia being carried by the medical man, and nurse, from one patient to another was much diminished,—an expression of opinion which elicited some adverse comment from Professor Playfair, who advocated the old plan of refraining from midwifery for a time, when it was found that one case of puerperal fever followed after another. Dr. Duncan pointed out that if this principle was carried out to its logical conclusion the general practitioner would have to abandon all his other practice if he, by any oversight, saw a case of scarlatina.

If a piece of membrane or placenta was

retained in the uterus, it was well to use a three per cent. solution of carbolic acid for at least twelve days after the accouchement, as prophylaxis against danger arising from within. Others advocated a solution of the subsulphate of iron with glycerin under these circumstances. But poisoning from within was not so common a cause of septicæmia as poisoning from without; and care on the part of the obstetrician would be found the great means of obviating puerperal septicæmia. It was by avoidance that puerperal mortality was to be reduced in amount. When septicæmia had once been started, then the treatment was no longer that of prevention, but that of cure. Dr. Duncan, as he announced at the commencement of his lecture, did not go into the treatment of the blood in puerperal septicæmia, but perhaps your readers will not feel aggrieved if his remarks are supplemented by some others on the management of the general condition. When symptoms of septicæmia set in, not only should the irrigation of the uterus several times a day be assiduously carried out, but antiseptics should be administered internally. Chlorate of potash and the sulphites and hyposulphite of soda, together or singly, should be given freely by the mouth. In one case in my by-past general practice, a delicate woman was confined of a dead, putrid child: on vaginal examination the head felt like a leather bag with a lot of pieces of broken pot in it, the cranial bones being all loose and out of place, and the fœtus discolored and far advanced in putrefaction. In this case the lochia became very putrid and stank, and there were evidences of blood-poisoning on the part of the mother. By means of vaginal injections of a solution of the sulphites and the internal administration of chlorate of potash and sulphite of soda, the ominous symptoms passed away, and the woman made an excellent recovery. Such was a successful case treated antiseptically, but in a very primitive way. Now the management of the case would be considerably more advanced and scientific. In addition to the injections and the internal administration of the various antiseptics, it would be well to influence the air respired by the patient, and to place in the sick-room some disinfectant; the drawback to this being the objectionable smell of most of these potent agents. Sanitas is odorless, and solutions of thymol are not offensive certainly, if they do not form a very agreeable scent, and such should be used freely, being sprinkled over the floor, and, better still, being well sprayed about the room at frequent intervals. This should be continued as long as any signs or symptoms of septicæmia remain. That such should be the line of treatment to be pursued in all cases, either of established septicæmia or where it is threatening, there can be no doubt remaining. The question then arises, "Shall antiseptic precautions be taken in all cases of parturition?" As regards my personal opinion, it is affirmative of this proposition. Antiseptic precautions, in the first place, are not expensive. They would form a species of cheap insurance. In the next place, they are free from danger if used carefully. Dr. Duncan pointed out that careless irrigation of the uterus might lead to serious consequences, air or fluid might be forced into the uterine sinuses; but against this may be set the presumption that the man who is careful enough to adopt antiseptic obstetric precautions would be careful enough to see the antiseptic method carried out properly in the one single source of possible danger, the irrigation of the uterus. As to the argument which might be raised that this involves unnecessary fuss and trouble, the answer must be returned that after certain unpleasant incidents it is commonly found that a very little care and foresight would have prevented the disasters. All preventive medicine has this for its *raison-d'être*, and many, if not most, practitioners will probably soon adopt antiseptic midwifery; and as to those who do not, it is probable that when they do have cases of puerperal septicæmia they will find their conduct and management of their cases sharply criticised. The obstetrician would carry with him, as part of his armamentarium, a bottle of carbolized oil with which to anoint the finger at each vaginal examination and to anoint the dorsal surface of the hand and arm in turning. Also the instrument might be smeared with this antiseptic before being applied, in the cases which require them. This would involve their being thoroughly cleaned; and then it is to be hoped we will hear no more of such sad cases as that reported in a recent number of the "Confessional" commenced in the *British Medical Journal* quite lately, where a medical man owned that after delivering a woman with his forceps he forgot to clean them, and the next woman delivered with the forceps died of septicæmia. This matter cropped up in the discussion on Dr. Duncan's paper, and Dr. John Brunton pointed out how the wood of the handles of midwifery forceps often shrank from the metal, thus leaving a crevice in which putrefactive material might lodge. He exhibited his own forceps which he had had for years in constant use: they consisted entirely of metal, nickel-plated, and their condition was admirable. In addition to the above, a little carbolic acid might be carried, in case it turned out that the child was dead, and it might be well to irrigate the uterus in a few hours, so as to prevent any putrefactive change with its consequent dangers. An irrigation of the uterus once a day, in all cases, with carbolized water, would be a cleanly practice, as well as a sanitary precaution, in midwifery practice, and might be adopted generally with advantage.

How far the use of carbolized oil on the obstetrician's finger would tend to prevent that sad accident, syphilitic poisoning, it is difficult to say. An answer only could be given after a considerable experience by many and numerous individuals. But antiseptic midwifery must not be looked at from the point of view of the safety of the accoucheur, but from that of the safety of the patient. Where operative measures are anticipated, I venture to think that antiseptic precautions will always be taken, after the evidence we have already before us.

And, lastly, comes the cause of all this, the thing born,—the infant itself. Dr. Duncan said that young organisms are readily poisoned septicæmically. It appears that ulceration of the stump of the umbilical cord has been followed by blood-poisoning in some cases, and that pus has found its way into the umbilical vessels. It is well then to dress the stump antiseptically, by enclosing it in a piece of lint treated previously to an application of carbolic acid and oil. An animated discussion followed Dr. Duncan's paper.

A case of *opium-poisoning* treated successfully by the subcutaneous injection of atropine has just occurred in the practice of an ex-house-surgeon of the West London Hospital. On the 14th of February, 1878, I had one grain of sulphate of atropia injected subcutaneously into a woman dying of opium-poisoning. On the 13th of February, 1879, a case was admitted into the Leeds Infirmary. In the absence of the house-physician, the house-surgeon took charge of the patient. He has forwarded me the following notes. A man aged 35 was admitted at 9 P.M., who was said to have taken ʒvi of laudanum one hour previously. He was able to answer questions, his pupils were contracted, he was irritable and somewhat excited, saying he wished he had taken twice as much. He refused to have the stomach-pump applied. A scruple of sulphate of zinc was given. At 9.40 there was no vomiting, and the patient was getting worse; the stomach-pump was resorted to, and about twelve ounces of brownish-colored fluid, smelling of opium, was withdrawn, and a pint of strong coffee injected. At 11.20 the patient was worse, and could be roused only with great difficulty. Pulse 120; respirations 15 per minute. The pupils were reduced to a pin's point; the patient had been walked about continuously. One-tenth of a grain of atropia was then administered subcutaneously; condition slightly improved till 12.20 A.M., when he became utterly unconscious and incapable of being roused by the most violent means, including faradaism, etc., etc.; pupils firmly contracted; pulse feeble and rapid; respiration down to 12. A quarter of a grain of atropia was then injected subcutaneously. At 12.40 A.M. the patient was somewhat better; respiration 18; pulse firmer and 120 per minute. The pupils were dilated; there was no return of consciousness, the extremities were cold, but the sleep was more natural. At 1.10 A.M. the respirations suddenly sank to 12, but rose again to 20 after artificial respiration had been carried on for ten minutes; pulse good; the patient continued to sleep till 8 A.M., when he awoke, was able to answer questions and to take food, and to the present time (16th, 6 P.M.) has continued to improve. This case illustrates the toxic effect of opium upon the respiratory centres, and also how the paralysis so induced can be met and antagonized by the use of atropine. The only criticism I have to make is that if a quarter of a grain of atropia had been injected at the very first, the serious symptoms which appeared might have been kept off. The case is very encouraging as to the future treatment of opium-poisoning by the subcutaneous injection of atropine.

J. MILNER FOTHERGILL.

PROCEEDINGS OF SOCIETIES.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

AT a conversational meeting, held at the hall of the College of Physicians, Philadelphia, February 12, 1879, Dr. Henry H. Smith, President, in the chair, Dr. Benjamin Lee made some remarks on "The Adaptable Porous Spinal Jacket" (see page 277), for which a vote of thanks was passed.

Dr. Packard inquired how long the jacket should be worn to effect a cure, and what is the rule as to the time when it should be left off?

Dr. Lee.—The matter of the introduction of apparatus of this kind is so recent that the question can scarcely meet a definitive answer. The rule for its removal would consist in the disappearance of all symptoms of active disease in the spine. If the contraction of the psoas has disappeared; if the patient is able to jump down from an elevation without pain; if he can stoop forward and touch the floor, bending the spine, without pain; as far as the treatment of the disease itself is concerned, the apparatus may then be left off. But if the question of restoring the symmetry of the body to as great an extent as possible be an object, the jacket may be advantageously worn a much longer time. An important effect from the application of the jacket is the prevention of rotation and settling, by maintaining the ribs in good position, and, from this support to the thorax, I am hopeful that the spinal jacket will give us a cure in a shorter space of time than the old form of brace that merely supported the spine itself.

Dr. Charles B. Nancrede inquired whether the lecturer had found any difficulty in using the silicate of soda; he had noticed, last sum-

mer, that for some unknown reason it had refused to harden in several cases.

Dr. Lee had observed this only the day previous, but could not account for it. In reply to another question, he stated that the felt jacket is to be worn day and night, is only to be removed temporarily for personal cleanliness, and that it is of the first importance that the patient should always be suspended in order to reapply it. Otherwise it will not adapt itself perfectly to the irregularities of the surface, will be painful, and will lose somewhat of its firmness.

The President, Dr. Henry H. Smith, after calling Dr. Packard to the chair, said that the treatment of spinal caries had for a long time possessed peculiar interest to him, that he had had extended experience in it, and had given the subject much thought, and he felt obliged to say that his conclusions differed very much from those of his distinguished friend the lecturer of the evening, as well as from others elsewhere who have had a very wide experience in the treatment of spinal disorders. Under such circumstances, he feared that this difference of opinion might be due to an erroneous conclusion on his own part, but, at the same time, his objections to some of the lecturer's opinions, as well as to those of others, were based upon several important anatomical facts, on which, if he reasoned wrongly, he would like to be enlightened by the lecturer. These views were based particularly upon the anatomical relations of the parts, and the effect of fixed dressings. Sometimes he thought that those who wrote most on the subject ignored greatly these anatomical relations of the spinal column, and were too purely mechanical in their ideas. He feared that there was such a thing as living too long, when he noticed that plans of treatment formerly well known had been lost sight of, and others re-named as novelties. Fifty years ago, in the practice of Dr. J. K. Mitchell, of this city, the speaker had seen almost the same apparatus for suspension by the head and shoulders as had been exhibited this evening. This plan was then used by Dr. Mitchell with the promise of very excellent results, but in several instances in which it had been tried, under the speaker's observation, the result was not what had been anticipated by either the surgeon or the patient. Indeed, very little had been gained by suspension that was not also derived from the old treatment of confining the patient to bed.

Independently of the fact that treatment by extension is not new, and independently of its former results, the speaker would inquire of the lecturer how suspension by the armpits can stretch the spinal column. You may push the scapulæ as far up as the ears, and yet not stretch the spine. The axillary horns of the crutch-like splint devised by Pott were not intended to extend the spinal column, except by the instrument-makers; but the axillary or crutch-head processes kept the spine from bending forward, and thus straightened it, whilst apparently increasing its length. Dr. Smith would also extend this objection to the practice of self-suspension, which, though it might stretch the pectoral and scapular muscles, could not possibly extend the vertebral column. The difference in height shown after suspension by the head is in some cases but slight, or may be an error in measurement, but in other cases it is due to throwing the shoulders backward and partially unbending the bow formed in the spinal curvature.

There was one remark made by the lecturer that had attracted Dr. Smith's attention and hearty approval, and that was the effect of the jacket upon the ribs. In these cases there is almost always more or less deformity of the sternum, owing to the fact that there is twisting of the ribs; the diseased vertebræ acting upon the ribs, these are rotated upon their attachment to the transverse processes of the vertebræ, the tubercle of the rib acting as a fixed point, the leverage being thus sufficient to alter the relations of the ribs to each other and produce traction upon the costal cartilages and sternum. Hence the patient is often deformed in front, or is "chicken-breasted."

The suspension, therefore, does not extend the spine by the direct extension of the vertebral column, but it does so indirectly through the ribs, thus overcoming the deformity of the sternum and throwing the ribs into better position. Hence a modification of the vertebral angle.

The intervertebral cartilages also demand attention; they are very important aids to inspiration in breathing, as when there is flexion of the spinal column these cartilages, at their anterior part, are very much compressed, and lose their function of extending the spine. When the ribs are lifted up by the external support of a jacket, the pressure is removed from these cartilages, and the spine is straightened through the ribs. The cervico-vertebral connections and intervertebral bodies may be stretched by the method of suspension of the head and chin, but certainly this does not extend to the part below the shoulders.

It can scarcely be denied that caries of the spine, in the majority of cases, is produced by tubercular deposit in the spongy structure of the vertebral bodies. The depraved general health of the patients shows this to be true; and the speaker thought that anything that tended to prevent the skin from carrying on its excrementitious functions, such as an immovable dressing, would favor this tubercular deposit by impairing the blood. The perforated porous jacket suggested by the lecturer, Dr. Smith thought was a great improvement over the heavy plaster-of-Paris dressing recommended in New York. He preferred, however, the perforated skin jacket of Dr. Darrach, of New Jersey, to any other that he had seen. If caries of the vertebræ is due to

tubercles, the prognosis of any plan of treatment must take it into consideration, for a deposit of tubercle in one place, it is well known, is very likely to be associated, sooner or later, with deposit elsewhere. The patient under treatment this evening had, as was seen, a tubercular deposit in his vertebræ, and also in his hip-joint, and in all probability would, in the course of time, have a similar deposit in the lung, as he had shown in an address delivered by him upon this subject at the last meeting of the American Medical Association.

Dr. Lee coincided most fully with the views expressed by the President upon what might be termed the mechanico-anatomical aspect of the question, and did not think that anything was gained by taking the hips as a fixed point of support and attempting to force up the shoulders from them, as in the apparatus of the shops. Ever since he first began to study the subject, he had been impressed with the fact that the articulation of the shoulder was the most movable articulation in the entire body; that the top of the shoulder may be pushed almost up to the top of the head without affecting the spine.

He was therefore led to adopt this form of apparatus (Taylor's splint), which makes use of the shoulder and the pelvic bones as points of leverage, and of the articular processes as a fulcrum, by means of which to elevate the bodies of the vertebræ at and above the seat of disease, thus unbending the curved spine in the manner indicated by the diagram which the President had placed upon the blackboard. The articular processes are very rarely implicated in the affection, and it is owing to this fact that we are able to take the weight of the body off from the vertebral bodies in this way and throw it upon them, thus permitting a cure to take place. We give nature a chance to step in and heal the ulcerated processes that are going on. When the contiguous surfaces of the vertebræ are in a state of ulceration, they irritate each other by every motion of the body; and while they are undergoing this disintegrating pressure, just so long it is impossible for the ulceration to heal. If we can now, taking the articular process, as I say, as a fulcrum, separate the bodies of the vertebræ to the slightest degree, we give a chance for the deposit of callus and the healing by anchylosis. If this is not done, the softening and ulceration will continue until the ribs attached to the diseased vertebræ sink down and rest on those beneath, and thus support the vertebræ, preventing further pressure. There is now a chance to heal by natural aid, but a cure will not take place before this occurs, and it will, of course, be with great deformity.

In the suspensory apparatus the shoulder-straps are not intended to extend the spine, but merely to relieve the patient occasionally, by taking part of the weight from the neck in applying the jacket. When using self-suspension as an exercise, the axillary bands are never used.

As regards the effects of extension, it would appear that the difference, which I have been able to show you this evening, of one and one-quarter inches, in the height of the patient, is in itself a proof not easily to be gotten over that there is an actual increase in the length of the spinal column. Whatever elongation took place must have been in the spine. Concerning the pathology of the disease, he was not able to accept the view that it is *necessarily* a result of tubercular deposit. That it occurs to a much greater extent in persons of a tuberculous or strumous diathesis, is undoubtedly true, but that there is actual deposit of tubercle in the majority of cases has not been borne out by pathological anatomy, nor, in his experience, by the results of treatment. He was unable to conceive how, if tubercle has been deposited in the vertebra, the mere taking off of the pressure will lead to a perfect cure. Take a case who has been suffering from caries of the spine for several years, with all the signs of struma, remove the pressure from the diseased vertebræ, and in one week's time all the signs of struma will begin to diminish and ultimately disappear. The patient will recover, although with more or less deformity, and will enjoy a good state of health for years. This is not the clinical history of tubercle, and he could not conceive how such a result could take place if there was such a deposit as has been referred to, while if it were simple caries it was readily understood.

Dr. Nancrede wished to make one observation upon the anatomical points that had been referred to by the President. The shoulder is ordinarily a very movable articulation, as had been stated. The clavicle is closely connected with the sternum, at its inner extremity. When the patient practises self-suspension, by the contraction of the pectoralis minor, aided by the subclavius and pectoralis major in front and the serratus magnus behind, the clavicle becomes fixed, so that any force acting upon the outer extremity of this bone will do so equally upon the sternum, thus drawing the anterior portion of the chest upwards and forwards, indirectly unbending and extending the spine, especially if the disease be in the lower dorsal or lumbar regions, as then the weight of the limbs acts as a direct extending force.

Dr. George Hamilton inferred that it had been implied that nature would be unable to effect a cure in this disease if it were tuberculous. Fifty years ago it was taught that there was no cure for tubercle, but we have lived long enough to know better, and have learned that tubercle may be cured, as demonstrated by autopsies, where cicatrices of healed tubercles are often found in the lung. If a cure may result in a movable structure like the lung, he was unable to see why it should not in the vertebræ.

Dr. Henry H. Smith said, in reply to Dr. Hamilton, that a case of spinal caries may recover without apparatus, by anchylosis.

He was quite willing to admit the great improvement that was evident in the modern treatment of spinal diseases, but he wished it to be distinctly understood that he thought that the porous and other jackets acted not by directly extending the spine, but by supporting the ribs in a good position, preventing flexion of the spine, and keeping the diseased bones at perfect rest until anchylosis occurred, whilst they improved the general health in permitting the patient to benefit by fresh air and exercise,—a great improvement over confinement to bed, as formerly practised.

Dr. De Forrest Willard said that he had long been interested in the treatment of spinal disease by the means of apparatus, and particularly by the immovable jacket. He regarded the action upon the ribs as a valuable one. It gives greater rest to the parts and makes them immovable, and he thought that it is to this latter action, rather than to extension, that we owe the good results obtained from this dressing. The application of the jacket, which encircles the ribs in front, most certainly serves a better purpose than any form of apparatus applied merely to the spine itself, as in the old forms of brace. By this means we make each rib give some support to the spine; the first nine or ten certainly afford efficient aid as "side-braces."

By this apparatus we have consequently gained a great step in the treatment of spinal disease, and although there were a considerable percentage of cases in which it was inapplicable, yet after several hundred applications he was glad to testify as to the general utility of the jacket.

As regards the old forms of extension, it had always seemed to him to be worse than useless to attempt to make extension from the axillæ, since it could do no more than support the shoulders. He had done away with the axillary straps for suspension long ago, using only the head-support and the rope for the hands. Concerning this head-suspension, he had never used it without feeling that some bad or serious results might ensue, especially in the sharply angular distortions in children, in which the disease was rapidly progressing. In applying the jacket, he merely lifts such cases off from their heels, for fear that in their struggles some injury might follow. The weight of the body might be sufficient to break a slight bridge of commencing anchylosis, and laceration of or pressure upon the spinal cord would result.

We can fix no time for the length of treatment. Some cases run very slowly, and others very rapidly; some will be cured in one year, others not for several years. He had applied five or six jackets to some cases that are still wearing them. Every time they return they say they are better, can take longer walks, have more strength, and suffer no pain; but still he did not feel at liberty to discontinue their use of the support. He had been experimenting for several months with felting, having become dissatisfied with plaster, and he believed that it had many advantages.

He asked the lecturer whether he used dry or moist heat to soften the felt.

Dr. Lee.—The moist heat gives the most perfect and satisfactory results, but in his plan the jacket is made at the factory and not by the physician. Of course, if considerable improvement has taken place, and it no longer fits the patient, the felt may be warmed and re-adjusted.

A very important topic had been raised by the last speaker,—that is, the struggling of young children. On this account he makes it a rule never to suspend a child for the purpose of applying the jacket, without giving him a daily practice in self-suspension for a week or two previous. It is surprising to see how soon children lose their terror and enjoy the use of the swing.

Nervous symptoms from foreign substance in the intestines.

Dr. M. O'Hara reported the case of a child 16 months old, who had for two days presented the following symptoms: intense pain, as if from violent colic; threatening convulsions; and sleeplessness. The bowels and bladder were thoroughly evacuated without effect. Relief was obtained only after narcotism by potassium bromide and opium. By accident the mother perceived a foreign body protruding from the anus, and by traction withdrew about eight inches of ordinary grocery-twine, which at once afforded complete relief.

A somewhat similar case in an adult was referred to. Upon examination for suspected anal fissure, Dr. O'Hara discovered a hair projecting from the anus about one inch. Careful traction resulted in the delivery of ten inches of jet-black hair, the distal extremity of which was armed with a fragment of hardened fecal matter the size of a pea.

PATHOLOGICAL SOCIETY OF PHILADELPHIA.

THURSDAY EVENING, DECEMBER 26, 1878.

THE PRESIDENT, DR. H. LENOX HODGE, in the chair.

(Continued from page 270.)

Tumor of hand. Presented by Dr. JOHN H. PACKARD.

MRS. Y., æt. 41, was seen by me at the request of Dr. Isaac W. Hughes, December 13, 1878, on account of a tumor of the right hand. She had, about a year previously, strained the middle finger in pushing some clothes into a basket; it remained painful and stiff, and five months later she

noticed the swelling, which steadily increased from that time.

The tumor was about the size of a small orange, decidedly lobulated, a small mass projecting into the palm nearly at its centre. The skin covering it was of a purplish-red color, smooth and shining, looking as if it was very tense; but there was a feeling of fluctuation on pressure. Sometimes there was a great deal of pain in the growth, shooting up the arm. There were no enlarged lymphatic glands.

Her general health was excellent, and her appearance that of robust health. So far as she knew, her family history was good.

December 16, in presence of Drs. Hughes, Sr. and Jr., and Dr. I. P. Stidham, I punctured the tumor with a grooved needle, the patient having been previously etherized; only a little blood escaped. I therefore proceeded at once to amputate just above the wrist by Teale's method slightly modified. Carbolized gut ligatures were applied, a small drainage-tube placed between the flaps, and the wound dressed with carbolized cerate.

She has had no bad symptoms, and the healing is now (December 27) almost complete.

The tumor on section shows a capsule, enclosing a soft, brain-like substance, lobulated, some of the nodules being much more vascular than others. On hasty examination under the microscope it seemed to me to be a round-celled sarcoma.

As the knife penetrated the deeper portions of the mass, it encountered a spiculum of bone, probably a portion of the metacarpal of the middle finger.

The specimen was referred to the Committee on Morbid Growths.

Report of the Committee on Morbid Growths.—"The tumor of the hand, presented by Dr. Packard, is found to consist of round lymphoid cells, without any apparent intercellular substances. The vessels are seen to be channels through the cells, possessing no distinct walls.

"The growth is a round-cell sarcoma.

"January 9, 1879."

Suppuration in an old hydrocele with thickened walls—Excision of the mass. Presented by Dr. J. H. PACKARD.

J. L., æt. 64, was admitted to the Episcopal Hospital, November 20, 1878, on account of a large and painful tumor of the left half of the scrotum. He looked fully the age which he gave, with a well-marked arcus senilis round both corneæ, but showed no other sign of ill health. He had formerly been a boiler-maker, but for a number of years had been obliged to take up less laborious work.

The source of the pain seemed to be partly the dragging weight of the tumor, partly the irritation from friction of his clothes. No enlargement of lymphatic glands existed.

He stated that he had long had a hydrocele, which was first tapped thirty years ago and repeatedly since; the last time being about two years ago. He thought that the sac was not then fully emptied, "something like clots" remaining.

Active inflammation, resulting in abscess, and the discharge of a large amount of pus, required appropriate treatment before any operation for the removal of the tumor could be instituted. On the 14th of December, it being evident that this suppuration was superficial to the mass, and the skin being almost free of abnormal redness, excision was performed in the usual way.

Upon section the tumor was found to consist of an enormously thickened tunica vaginalis, the walls being in some places fully half an inch through. The cavity was full of thick creamy pus, and at its posterior part lay the testicle, to all appearance perfectly healthy.

After the operation the patient recovered rapidly, the discharge from the cavity left in the scrotum being at first very great, but soon lessening under the use of injections of carbolic acid, 1 part to 20 of water. The wound is now (December 26) almost entirely healed.

Suppuration must be extremely rare in cases of hydrocele, since no author, so far as my knowledge goes, mentions it. I am therefore inclined to think that in the case now reported there was, on the occasion of the last tapping, a vessel wounded, and that a hæmatocele was thus formed, in which, from some pressure or other irritation, inflammation was set up and the contents converted into pus.

Unusual tumor of the breast, following confinement—Amputation—Recovery. By Dr. W. W. KEEN.

Mrs. McC., æt. 30, was delivered of her first child, April 20, 1878. Nothing of any special moment occurred, saving a tedious recovery by the bladder of its expulsive power. The catheter had to be used for over a week. During this time I watched the breasts, as usual, lest any danger of a mammary abscess should arise, but at no time was any lump detected. In June she called to see me, when I found a lump at the upper part of the right breast, which she stated had been there for some three weeks. It was as large as an English walnut, and presented all the ordinary symptoms of a milk cake, except that it was indolent. During the summer, in consequence of inattention on her part, and absence on my own, I saw her only at somewhat long intervals. The usual means to bring about resolution and, failing in this, to bring on suppuration were tried, but were all fruitless. Only one small superficial abscess formed and was opened, and that one was situated below and inside the nipple. Meantime the tumor had gradually invaded more and more of the breast, and by the middle of October had involved the whole of it. Soon after this

a sudden inflammation appeared, and covered the chest, upper arm, and shoulder. It was not erysipelatous; was attended with considerable œdema and constitutional disturbance. Fearing suppuration behind the mammary gland as soon as the acute inflammation disappeared, which was in three or four days, I made an exploratory incision at the lower and outer edge of the breast which was the seat of greatest pain and tenderness, although no fluctuation could be discovered. The incision gave no evidence of pus, and healed in a week or ten days.

Early in November a consultation was had with Dr. Albert H. Smith, who confirmed my previously expressed opinion as to the advisability of amputation of the breast, which was done November 22, 1878. At that time her condition was as follows:

Her general health had suffered but little. Her appetite and sleep were fair. The pain, which was never lancinating, was a dull, aching pain, partly attributable to weight. The breast was enlarged to about the size of the double fist. It was hard; pitted slightly, but perceptibly, on pressure; was inflamed; of a deep-red color; at points almost purple. The nipple was not retracted, but was considerably smaller and less evident than it had been. The skin was not movable over the breast, but was evidently involved by the tumor, especially in the upper (the older) part, where it was brawny. It was not ulcerated. The tumor was also evidently spreading beyond the limits of the gland towards the axilla. The breast was still movable over the subjacent muscles. None of the axillary glands were involved; nor were the mammary veins enlarged.

The breast was removed by two elliptical incisions, including the nipple and chiefly the skin below the nipple. No adhesions existed except at the site of the exploratory incision and where the tumor was extending towards the axilla. All of this was carefully dissected out. Its limits here were ill defined, but the rest of the tumor had a well-defined margin exclusively limited to the mammary gland. The operation was done throughout with careful antiseptic precautions. Three arteries were tied with catgut, and, after inserting a drainage-tube traversing the entire depth of the wound, the edges were approximated by eleven wire sutures.

She reacted well. The urine had to be drawn for three days. On the 24th (two days after the operation), the first rise of temperature took place (101.4°). She ate, however, a good Christmas dinner, and in two days the temperature had fallen to 99°. A very scanty suppuration occurred after a few days, caused, I think, by a too-slow shortening of the drainage-tube, which was not entirely removed till the eighth day. It ceased immediately on its removal, and on the twelfth day the wound was entirely healed and the last sutures removed.

The tumor on section was hard, but did not creak under the knife. It was mottled-white, and apparently fibrous in its texture, and dotted here and there with small patches of fat. No evidence of suppuration existed at any point. It measured five inches in diameter and two inches in thickness.

Report of the Committee on Morbid Growths.—"A histological examination of the tumor from the mammary gland, presented by Dr. Keen, shows it to be composed mostly of fibrillar connective tissue, with the atrophied acini of the gland, still retaining their epithelial lining, scattered through it. The new formation may be considered a peri-canalicular fibroma.

"January 9, 1879."

Metastatic deposits in the pleura, lungs, thoracic glands, and kidney, from a patient who had atrophic scirrhus of the breast for seventeen years and a half. Presented by Dr. S. W. GROSS.

The specimens exhibited to the Society were removed from a woman whose history, up to eighteen months before her death, is fully described in the *Philadelphia Medical Times*, vol. viii. p. 84. The primary growth, along with implication of the corresponding axillary lymphatic glands, made its appearance in a prolific female at the age of 46 years, or six years after the menopause. At the expiration of sixteen years the right mamma was not more than one-sixth of the volume of its fellow, which was small and flabby. It was converted into an irregular, densely hard, and inelastic nodulated mass, which was closely adherent to the subjacent structures and to the skin, which was thin, finely injected, and ruddy, and the seat of several superficial ulcers, which were covered with crusts. The nipple formed a small elevation on a hard nodule. The axillary glands of the right side were converted into a dense circumscribed tumor as large as a walnut, which was firmly attached to the walls of the chest. The supraclavicular glands were slightly enlarged, and several glands were detected in the left axilla, which were first noticed four months previously. On the inner side of the withered breast, parallel with the median furrow of the chest, the skin was the seat of four shot-like nodules. The woman's general health was excellent, and she merely complained of sharp intermittent pains at the site of the excoriations.

From this time, May 12, 1877, until the 27th of November, 1878, I lost sight of the patient, when, through the kindness of Dr. J. M. Barton and Dr. G. A. Rex, who had seen her during the interval, I was enabled to be present at the post-mortem examination and secure the diseased gland, with a portion of the walls of the thorax and the attached right lung, the left lung, and the right kidney. For about twelve months before her decease she had suffered from cough, occasional slight

hæmoptysis, oppressed breathing, and other signs of tubercle.

In addition to the appearances already described, the skin of the scapular and mammary regions was found to be occupied by several secondary growths, lenticular in shape, the largest of which were nearly half an inch wide and three-sixteenths of an inch in their greatest thickness. In addition to these, similar growths were observed in the skin of the left breast, two inches above the nipple and at the base of the ensiform cartilage. The pectoral muscles were also the seat of extensive deposits. The right parietal and visceral layers of the pleura were intimately adherent, and the lung was so closely attached that it was torn through in attempts to separate it from the inner surface of the chest. Both lungs were pervaded by tubercles, but especially the right, in the latter of which several small cavities were discovered. They were also filled with metastatic scirrhous deposits, which varied in size from a small shot to a cherry. The parietal pleura investing the diaphragm and lung of the left side was beset with a multitude of nodules, from the periphery of which numerous lines radiated, through intraction of the connective-tissue fibrils of that membrane, thereby presenting the appearance of the hub of a wheel with its diverging spokes. The bronchial and mediastinal glands were converted into scirrhous masses, and the right kidney was the seat of twelve superficial nodules. The remaining viscera were free from disease.

Microscopical examination of one of the larger nodules of the skin, and of the axillary glands, conducted with Dr. Shakespeare, revealed the usual appearances of scirrhous carcinoma.

REVIEWS AND BOOK NOTICES.

A HAND-BOOK OF NURSING, FOR FAMILY AND GENERAL USE. Philadelphia, J. B. Lippincott & Co.

This is a very full treatise upon the subject in hand, over two hundred and fifty pages being occupied with discussions of the duties and proper knowledge of the nurse. It is not only full, but very plainly written, and, after careful examination, seems to us very correct in almost all its teachings. We have noticed, however, one atrocious blunder, evidently not typographical, but a *lapsus pennæ*, which we trust will be corrected before life is lost through its means. This error is on page 162, in the following sentence: "If the poison is an *alkali*, such as sugar of lead, etc., give vinegar and water as soon as possible"!

This whole section on poisons is, indeed, very poor, probably much the poorest in the book, and should be rewritten, so as to make it more complete and correct. There should be an accurate tabulated list of the antidotes of all the common poisons, with plain directions for treatment previous to arrival of the physician. Outside of the toxic portion we have found nothing worthy of censure, and much deserving praise, in the book. We sincerely congratulate the managers of the Connecticut Training School for Nurses on the manual they have given to the world.

ANTHROPOLOGY. By Dr. PAUL TOPINARD. With Preface by PROF. PAUL BROCA. Translated by ROBERT T. H. BARTLEY, M.D. London, Chapman & Hall. Philadelphia, J. B. Lippincott & Co., 1878.

This book of five hundred and forty-five pages constitutes one volume of the "Library of Contemporary Science" now in course of publication, a series which we can commend to any of our readers desirous of being *en rapport* with the scientific progress of the day. Any person who may expect to find Dr. Topinard's brochure easy reading or superficial in its character will be much mistaken. It is a technical volume of facts and of methods, or, rather, of methods and of facts, condensed to the utmost, which will put whoever masters it well on in the royal high-road to anthropological authority. Anthropology is defined to be a study of man moral and physical; but as interpreted in the volume before us it embraces the natural history of man viewed in the manner that the zoologist would study a species of agricultural ant or other intelligent lower organism.

The first part of the book treats of the anatomical characters of the human organism, touching also the physiological characteristics, and especially comparing man with other animals. It is very technical in style, but is sufficiently intelligible to a physician willing to study it closely. The conclusion arrived at is that the only characters separating man from the anthropoid apes are that he always stands erect, and that his brain is three times as large as that of his nearest neighbors. Huxley's, Broca's, and other zoological classifications are discussed,—that of Broca being adopted and man made a *family*, first in the *order* of primates and in the *class* of mammalia.

The second part of the book treats of the Races of Mankind. This discussion occupies about three hundred pages, and, of course, cannot be here followed in detail. Fulness of detail rather than clearness or steadiness of generalization characterizes these chapters of Dr. Topinard's volume, possibly because the subject does not admit of thorough clearness, possibly because the view he takes of the subject is not consistent with clearness. A vast number of very interesting facts are given; as example may be mentioned the account of the Ainos,—a race whose skin on the back, limbs, and front of the chest is covered so closely with hair as to constitute a thick fur. The concluding generalization is that the family

man—is composed of a number of types equivalent to what are considered as species in the lower animals, but having an unlimited power of interbreeding with one another, although not springing from a common origin. A very careful reading of the arguments brought forward has convinced us that there is a complete failure to prove the plurality of origin in man. The lack of clearness in the distinguishing race-characters, the almost complete absence from the earth of any pure types, the plastic mouldings of anatomical and physiological characters everywhere apparent, seem only to lead to the conclusion that though the riddle may not at present be read, there is no conclusive evidence that man has had more than one parentage; that the theory that all men have had a common origin may not be proven by, but is not incompatible with, facts at present known.

The final thirty pages of the present volume are taken up with the consideration of the origin of man. Haeckel is the authority. Here certainly all is speculation, and imagination runs riot. The Land of Lemuria, submerged beneath the Indian Ocean, yields not up its dead, and the man-ape does not yet appear. Until that day we may doubt.

ATLAS OF DISEASES OF THE MEMBRANA TYMPANI. By H. MACNAUGHTON JONES. Philadelphia, Lindsay & Blakiston, 1878.

"Atlases" are the fashion of the day; scarcely any morbid condition or medical plant is scathless from the rage of the chromolithographer. With this fashion we are not altogether in sympathy; but if ever such representations are valuable to the diagnostician, it is in conditions so obscure and yet so close to the range of sight as are diseases of the membrana tympani. Figures of such affections as "polypi proceeding from meatus" are of course fit only to amuse children; but the bulk of the illustrations of the present volume is composed of fifty-four carefully drawn and colored figures of the membrana tympani, which render the work of permanent value. To all who are called upon to make aural diagnosis the book commends itself for reference in cases of doubt; and to the student of aural medicine it must prove valuable in making the crooked straight and the rough places plain.

HEALTH PRIMERS. New York, D. Appleton & Co., 1879.

This series, which we believe is a reprint of one now appearing in England, consists of a number of small duodecimo books, about one hundred pages each, written for popular instruction upon various subjects connected with hygiene and "preventive medicine." There are to be fifteen volumes in all; of these, four, "Exercise and Training," "Premature Death," "The House," "Alcohol," have been received. We have carefully read three of these and looked over the fourth, and can, with an unjaundiced or otherwise afflicted conscience, highly commend them all as being to the point, clearly and simply written, and full of instruction proper for the laity, and for many of those who call themselves doctors. We trust that these health tracts may circulate widely, feeling that if they do so they will accomplish much good. It seems to us that they are open only to one valid criticism, namely, that of being so intensely English that in some cases they will not meet the exact needs of our country. Science is cosmopolitan, but not so the applications of science to the amelioration of the habits and surroundings of a peculiar nation.

GLEANINGS FROM EXCHANGES.

DIAGNOSIS AND TREATMENT OF OBSTRUCTION OF THE BOWELS.—The *British Medical Journal* for January 11 contains several articles on this important and practical subject, of which we give a brief summary. Dr. T. Clifford Allbutt says, "When a doctor is called to a case of obstruction of the bowels, he has at once to determine, if possible, the process, the site, and the nature of the block. As regards the process of it, he will try to decide whether the obstruction be due, first, to enteritis, plugging, intussusception, hernia, or stricture. He may then decide where the disturbance lies, and, finally, of what nature it is. The enteritis may be primary, secondary, or tubercular, etc. Plugging may be fecal, polypoid, due to gall-stone, and so forth, and may be accompanied by enteritis. Intussusception may be strangulated, or simply incarcerated, and is probably always accompanied by inflammation, simple, purulent, or gangrenous. Hernia may be in the usual external or internal sites, or may be due to other accidental twisting or snaring of a loop of bowel, and is sure to be accompanied by some degree of inflammation. Finally, stricture may be simple, malignant, or due to pressure from without, and is less frequently accompanied by inflammation than the previous events. With all the other forms of obstruction, inflammation of the bowel is more or less surely associated."

Setting aside cases of chronic obstruction, which rarely need heroic action, we find that in this affection inflammation always counts for something, generally for a good deal. Whether we know how to deal with the main cause or not, we generally know how to deal with the inflammation, and, excepting in the extremest urgency, our first duty is to simplify our case by lessening this. Unfortunately, means are often used which tend rather to aggravate the enteritis, and of all these, injections into the bowel are the most mischievous. Even in fecal accumulation it is not the fecal mass, but the inflammation set up by it, to which

the explosion is due; even for diagnostic purposes, enemata are rated far too highly, and are rarely of much service. It is our duty to quiet the inflammation first, and then to remove the cause, if possible. Enemata are still worse in strangulation, and yet Dr. Allbutt says he has never been called in to a case of such obstruction without finding that such a measure has been assiduously employed, to the serious injury of the patient. He gives the following axiom: "If rest be in every way sedulously enforced, and the inflammation which palsies the bowel be carefully combated by the use of sedatives, such as opium and belladonna, and other means, cases of obstruction of the bowels tend to recovery." Dr. Allbutt adds an illustrative case, and concludes by urging a similar practice in internal hernia as in external,—opiates with gentle taxis, and, if this fails, opening the abdomen and reposition.

Mr. T. P. Teale advises exploration of the abdominal cavity: we no longer fear to cut the peritoneum, and the patient should not suffer by our delaying the operation. "May we not," he says, "look forward to the time when we shall treat peritonitis, traumatic, ovarian, or puerperal, by opening and washing out the abdominal cavity and emptying the intestines?"

Mr. G. F. Hodgson gives two cases of intussusception of the bowels in infants. In his remarks on these cases, which resulted fatally, he urges the necessity of a prompt and accurate diagnosis as essential to successful treatment. That treatment would seem to be, first, to avoid purgatives; secondly, to give anodynes frequently; and thirdly, to adopt measures for mechanically rectifying the displacement. For the latter purpose, a copious, bland fluid injection has sometimes succeeded, though more often it has failed, the fluid generally returning at once as injected. Insufflation of air is said to have wrought more cures than fluid injections. Fluid and air failing, no time should be lost before gastrotomy and the untucking of the gut should be attempted. Mr. Hodgson adds several interesting references.

Mr. N. P. Blake gives a case of intussusception in an infant of seven months, which was successfully treated by distention of the large intestine with thin gruel, under chloroform.

THE ANTIPYRETIC TREATMENT OF TYPHOID FEVER.—In a paper bearing this title in the *American Practitioner* for January, Dr. G. C. Smythe announces conclusions substantially as follows: 1. What is usually known as the "typhoid condition" is probably caused by the persistent elevation of temperature, in which the blood is poisoned by the débris of broken-down nitrogenous tissue, this long-continued fever-heat causing degenerations in vital organs, or death from paralysis of the brain or heart. 2. This being the case, the most important indication is to keep the patient cool. The hourly use of the thermometer is the most trustworthy guide to this end. 3. Cold-water baths and quinia are the best agents for lowering the temperature. In the first week of the disease, and before quinia has been given, a bath may be required every two or three hours. After the patient has been thoroughly cooled with the quinia, three or four baths per day will answer, and a still less number later in the disease. The "gradually cooled" bath appears to Dr. Smythe to be the best. 4. Quinia is the more valuable agent of the two, and can be used in all stages of the disease; while the baths seem to annoy some patients, especially during the third week and the latter part of the second. Frequently no other treatment is necessary for two or three days after a full dose of quinia. In the latter weeks of the disease the full amount of the remedy can be materially lessened. It always moves the bowels several times the day following its administration, lessening the tympanites; and the unabsorbed portion thoroughly disinfects the discharges, thereby contributing largely towards preventing the spread of the disease. After a remission is produced by quinia, the temperature rises in accordance with a fixed law, attention to which is called by Dr. Smythe in the body of his paper.

THE SURGICAL TREATMENT OF ANASARCA.—Mr. H. Adolphus Wickers communicates the following (*Medical Times and Gazette*, January 4).—The legs having been well oiled and a rubber sheet placed under them, about twenty or thirty punctures are rapidly made in their sides with a stout needle or hare-lip pin; some sponges which have been well squeezed out in a saturated watery solution of salicylic acid are now placed against the punctures, so as to absorb the fluid as it transudes; these sponges, as they become filled, are squeezed out, and again passed through a solution of salicylic acid, before being again placed against the patient's skin. In this manner renewals may be required about every two or three hours; and four or five pints of fluid may be drained away during the first day, the whole process being possibly completed in four or five days, at the end of which time the punctures are usually healed. By the use of salicylic acid, decomposition of the dropsical fluid does not occur, the sponges are kept free from fetor, the skin is not irritated, and cutaneous inflammations of a low type are entirely prevented.

CITRATE OF CAFFEIN AS A DIURETIC IN CARDIAC DROPSY.—Prof. Gubler called attention some time since to the property of the citrate or the bromhydrate of caffein, given in doses of four to eight grains, of producing abundant and instantaneous diuresis in cases of cardiac dropsy, either when given hypodermically or by the mouth. Dr. Lewis Shapter (*Practitioner*, January) adds to this his experience

with the citrate alone. The dose given by Dr. S. has not exceeded three grains in any case, on account of the nausea and vomiting produced by larger amounts. This has been sufficient, however, to establish copious diuresis as a general thing, even in the most advanced stages of cardiac dropsy. In one of Dr. S.'s cases a pill of citrate of caffein, three grains, was given at night. The urine previously passed had been to the amount of a pint to a pint and a half in twenty-four hours. During the first night after taking the pill, and the next morning, the patient passed two and a half pints of urine. Subsequently citrate of caffein in three-grain doses was ordered in solution with glycerin and water, and for six weeks, while this was continued, the amount of urine passed during each twenty-four hours amounted to from two to three pints. Other cases are detailed by Dr. Shapter, in which the citrate of caffein acted equally well. His observations lead him to the opinion that citrate of caffein occupies a "special" place as a therapeutic agent in cardiac disorder, its position being limited as a cardiac diuretic to advanced cases of cardiac disorders, or such advancing cases of cardiac disorders where muscular embarrassment and neurosal, incoordinate cardiac action (the indicators of progressive mural decay) exist. The existence of these symptoms appears clinically to forbid the administration of "tonic" doses of digitalis so long as an outlet has not been effected from the venous system which shall, coincidently with more powerful cardiac contraction, relieve the stagnating pressure of venous blood on the right side of the heart. Citrate of caffein is (1) a diuretic. (2) It increases the heart's action, either (*a*) directly by stimulating the organ itself, or (*b*) indirectly by means of the arteries which it also excites to further contraction. After discussing its physiological action at some length, Dr. S. concludes that, whatever may be the true theory of the action of citrate of caffein, the opinion is forced upon him from observation, that in doses of gr. iii to gr. vi it is a diuretic and cardiac stimulant of great value in cases of cardiac dropsy where a dilated, feeble, and irregularly contracting heart undergoing progressive mural decay is the main clinical and pathological element to be contended against.

MISCELLANY.

THE GERMAN MEDICAL FACULTIES.—The total number of ordinary professorships in the medical faculties of Prussia is eighty-eight, of which four will in future be abolished. The lowest salary is 1800 marks ($450), at Königsberg; the highest, 7500 ($1837), at Berlin, Halle, and Göttingen. There are forty-two salaried extraordinary professors. In future their number will be reduced to thirty-eight. The highest salary is 3600 marks ($900), at Bonn; the lowest, 600 ($150), at Göttingen. In addition there are thirty-four extraordinary professors, who receive *no* salary. The total number of privat-docenten, or private tutors, who are unpaid and unrecognized by the state, is one hundred and three, of whom forty-three are at Berlin.

THE "CONFESSIONAL."—At the beginning of the year, our contemporary the *British Medical Journal* announced the opening of a "Confessional" for the anonymous record of faults, errors, mishaps, and warnings in practice. The first contributor tells a tale of the delivery of a decomposed fœtus by the forceps, the subsequent use of the same forceps without disinfection, in another case, and the death of this patient, of puerperal peritonitis, as the result. In a subsequent number of the journal other experiences are related. One is of a patient who died of exhaustion, hemorrhage, and syncope, possibly hastened by being kept sitting up. Another is of a dose of calomel given in melæna, with probable ulceration of the bowel, resulting in fatal hemorrhage. Unquestionably, if many members of the profession could be induced to tell, thus anonymously, of their mistakes, much might be learned.

TRANSCENDENTAL THERAPEUTICS.—Among the stories handed down by tradition and current among the resident physicians of one of our large hospitals some years ago, was the following, told the writer by one of his seniors in service. "If you want to get on the right side of your 'chief,' Dr. Q.," said he, "just ask him to give you the formula for a good digestive pill. But wait; I will tell it you myself. You make a pill in three concentric layers, and the patient swallows it. Outside is a coating of nitrate of silver; that is dissolved in the stomach, and stimulates the flow of gastric juice. Now, just as this outer coating is dissolved, the pill pops through the pyloric orifice, and as it enters the intestine the second layer comes into play,—aloes. On goes the pill in its beneficent course, stimulating peristaltic action, gathering up the débris, carrying all before it until, just as it reaches the anus, the last trace of aloes is exhausted, and the core is exposed,—belladonna (you know all about belladonna, of course,—just graduated last month; well, you know how it dilates the pupil;—D'ye twig?)—muscles of the anus relax, and your patient is relieved. That's Dr. Q.'s digestive pill. Now, that's what I call *science*. Of course you have to calculate the proportions of the ingredients very closely. Q. will tell you all about it." The "junior," however, suspected a hoax, and never asked, and so the true proportions of Dr. Q.'s digestive pill have never been made known.

PRECAUTIONS against the introduction of the plague into this country have already been taken by the authorities, Dr. Wood-

worth, Surgeon-General United States Marine Hospital Service, having issued the following regulations, dated March 5, and addressed to officers of customs, etc.:

"Until further orders, no vessel from any part of the Black Sea or the Sea of Azov, conveying any rags, furs, skins, hair, feathers, boxed or baled clothing or bedding, or any similar articles liable to convey infection, nor any vessel from any part of the Mediterranean or Red Seas, having on board such articles coming from Southern Russia, shall enter any port of the United States until such articles shall have been removed from the vessel to open lighters, or to some isolated locality, and the vessel disinfected and thoroughly ventilated, and the suspected articles shall be disinfected either by chemical agents and exposure to free currents of air or by burning, as shall be determined by the Surgeon-General of the Marine Hospital Service.

"The certificate of the State or municipal quarantine officers of health may be accepted as satisfactory evidence of compliance with these regulations on the part of the vessel."

Under this regulation, the Collector of New York has already ordered a cargo of rags coming from Trieste to be "sealed up" until it shall have been taken in hand by the health authorities and properly disinfected.

DWELLINGS OF THE POOR, BERLIN.—The Director of the Statistical Department of the Municipality of Berlin, in a recent report, shows that the dwellings of the poor in that city are in a worse condition than they were fourteen years ago. In 1861 the number of dwellings up one pair of stairs was 262 per 1000; now it is 207; while the underground dwellings have increased from 92 to 102 per 1000, and those without kitchens from 69 to 231 per 1000. Nearly 120,000 people live underground, and 90,000 of them are lodged at such a depth below the surface that the atmosphere is dangerous to life. Of the 940,571 inhabitants of Berlin, about 10,000 live in dwellings where a fire cannot be lighted, and 426,000 in others where only one room can be warmed.

PIGEONS AS CARRIERS OF PRESCRIPTIONS.—It appears, from the *Scalpel*, that a physician in the Isle of Wight, who has a large country practice, is accustomed to take about with him on his rounds a number of carrier-pigeons. When he writes a prescription for his patient, the paper is tied to the leg of one of the birds, which is forthwith loosened and flies straight home to the doctor's pharmacy. Here the assistant receives the prescription, and it is put up at once instead of waiting until the doctor returns, much loss of time being thus saved.

BENZOATED cotton is employed extensively by Professor Volkmann, of Halle, being applied to granulating sores, and constituting his ordinary dressing for small wounds. It is particularly non-irritating.

NOTES AND QUERIES.

AN ACT TO PREVENT THE INTRODUCTION OF INFECTIOUS OR CONTAGIOUS DISEASES INTO THE UNITED STATES, AND TO ESTABLISH A NATIONAL BOARD OF HEALTH.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there shall be established a National Board of Health, to consist of seven members, to be appointed by the President, by and with the advice and consent of the Senate, not more than one of whom shall be appointed from any one State, whose compensation, during the time when actually engaged in the performance of their duties under this act, shall be ten dollars per diem each and reasonable expenses, and of one medical officer of the Army, one medical officer of the Navy, one medical officer of the Marine Hospital Service, and one officer from the Department of Justice, to be detailed by the Secretaries of the several Departments and the Attorney-General, respectively, and the officers so detailed shall receive no compensation. Said board shall meet in Washington within thirty days after the passage of this act, and in Washington or elsewhere, from time to time, upon notice from the president of the board, who is to be chosen by the members thereof, or upon its own adjournments, and shall frame all rules and regulations authorized or required by this act, and shall make or cause to be made such special examinations and investigations at any place or places within the United States or at foreign ports, as they may deem best, to aid in the execution of this act and the promotion of its objects.

SEC. 2. The duties of the National Board of Health shall be to obtain information upon all matters affecting the public health, to advise the several departments of the government, the executives of the several States, and the Commissioners of the District of Columbia, on all questions submitted by them, or whenever in the opinion of the board such advice may tend to the preservation and improvement of the public health. *It shall also aid in the work of State boards of health, and of State or municipal quarantine authorities, by such means and to such extent as may seem to it necessary and desirable. And for this purpose it is authorized to pay a certain portion of the expenses of such State boards of health or quarantine authorities, at its discretion:* Provided, *That the amount so paid shall in no case exceed one-half the total expenses for any such board or quarantine authority:* And provided further, *That such reports and information as may be required by the National Board of Health shall be furnished by the State boards and quarantine authorities thus aided.*

SEC. 3. That the Board of Health, with the assistance of the Academy of Science, which is hereby requested and directed to co-operate with them for that purpose, shall report to Congress at its next session a full statement of its transactions, together with a plan for a national public health organization, which plan shall be prepared after consultation with the principal sanitary organizations and the sanitarians of the several States of the United States, special attention being given to the subject of quarantine, both maritime and inland, and especially as to regulations which should be established between State or local systems of quarantine and a national quarantine system.

SEC. 4. The sum of fifty thousand dollars, or so much thereof as may be necessary, is hereby appropriated to pay the salaries and expenses of said board, *and the further sum of five hundred thousand dollars*, or so much thereof as may be found necessary, to carry out the purposes of this act.

Approved March 3, 1879.

OFFICIAL LIST

OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT U.S. ARMY FROM FEBRUARY 23 TO MARCH 8, 1879.

KING, WILLIAM S., LIEUTENANT-COLONEL AND SURGEON.—His sick-leave extended eight months, with permission to go beyond sea. S. O. 53, A. G. O., March 6, 1879.

FITZGERALD, J. A., CAPTAIN AND ASSISTANT-SURGEON.—Granted leave of absence for four months on surgeon's certificate of disability, to take effect March 1, 1879. S. O. 42, A. G. O., February 20, 1879.

POWELL, JUNIUS LEVERT, appointed ASSISTANT-SURGEON U. S. ARMY, with the rank of FIRST-LIEUTENANT, to date June 6, 1878, having successfully passed an examination before the Army Medical Board, in session in New York City, N.Y.